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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/773,550  | 02/05/2004  | Frank J. Cordiale    | DE .002             | 6795             |
| 41898   | 7590        | 09/09/2005           | EXAMINER            |                  |
| LONG & CHYBIK<br>1575 DELUCCHI LANE, SUITE 32<br>RENO, NV 89502 |             |                      | JONES, JUDSON       |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2834                |                  |
| DATE MAILED: 09/09/2005   |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/773,550 | <b>Applicant(s)</b><br>CORDIALE ET AL. |  |
|                              | <b>Examiner</b><br>Judson H. Jones   | <b>Art Unit</b><br>2834                |  |

**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-14 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities: Applicant is misusing the phrase “dwell angle.” Dwell means to reside or stay. This phrase is used in referring to internal combustion engine valves. Since the crankshaft of a typical ICE rotates through 360 degrees, the phrase “dwell angle” is appropriate. Dwell angle means the number of degrees in a rotation cycle where the valves remain closed. See Kamm et al. 4,762,096 column 4 lines 57-65. This has nothing to do with “variable control of the time duration for the energizing of the individual coil wire sets” as recited in applicant’s specification on page 6 lines 10 and 11. Also the statement that “The prior art also neither addresses nor provides for ... variable control of the time duration for the energizing of the individual wire coil sets.” is incorrect. Appropriate correction is required.

Another problem with the specification is on page 3. The definition of a solenoid in lines 5-7 is adequate. However the phrase in parentheses in lines 24 and 25 (i.e., a solenoid inside a solenoid) is incorrect. If the core of iron or steel within the solenoid coil is replaced with another coil, then there is no inner solenoid because there is no core within the inner coil. Appropriate correction is required.

Another problem with the specification is the discussion of counter EMF on page 3 line 26 to page 4 line 4. When a current flows through a wire, it creates a magnetic field which can move a magnetic material. When that magnetic material moves, it in turn creates a current in the wire. That created current opposes (or counters) the original current flowing through the wire

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and therefore it is referred to as a counter or back EMF. Applicant's explanation of CEMF is incorrect. Appropriate correction is required.

Another problem with the specification is the discussion of "electrical audio signals" on page 19. An electrical signal powers a speaker and the speaker then outputs an audio signal (a noise). There is no such thing as an electrical audio signal. According to Johnson 6,425,997 B1, "... an Audio Generator Model 3001 .... (despite its name) does have electrical leads to supply either square waves or sine waves ...." What applicant appears to be doing is taking electrical signals from the generator and using those electrical signals to power the coils of his device. Also in line 26 on page 19 of the specification "Sin/Square wave audio generator" should be Sine/Square wave audio generator. Appropriate correction is required.

#### *Claim Objections*

Claims 1-3, 11, 19 and 20 are objected to because of the following informalities: The phrase "dwell angle" is being used in these claims in a confusing and incorrect manner.

Appropriate correction is required.

Claims 9 and 12 are objected to because the phrase "audio signal generator" is misleading. Applicant is not using sound to energize wire coil sets, either directly or indirectly.

Appropriate correction is required.

Claim 17 is objected to because it is an incomplete sentence and because it lacks a period.

Claims 18-20 are objected to because "the additional step" lacks antecedent basis.

Claim 18 is additionally objected to because "the propulsion magnet" lacks antecedent basis.

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Claim 20 is additionally objected because it is a word for word duplicate of claim 19.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 9, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Gifford 5,457,349. Gifford discloses multiple wire coil set solenoids with reciprocating magnetic objects 12a-12d with an energizing control system that variably controls the time duration for the energizing of the individual coil wire sets as described in column 2 lines 23-27 and column 5 lines 36-63.

In regard to claims 2 and 11, since the time duration for the energizing of the individual coil wire sets is controlled by a microprocessor, the timing can be changed by changing the programming of the microprocessor. See Gifford column 5 lines 63-66.

In regard to claim 3, see Grikscheit et al. 3,889,528 which explains how the velocity of a piston varies during the piston stroke. Since each wire coil set is energized when the permanent magnet on the piston is nearby, therefore the duration of the current for the different coil sets will vary as the speed of the piston varies. Thus Gifford inherently satisfies the limitations of claim 3.

In regard to claim 4, microprocessors have internal timing circuits to control the on-off pulses to the computer memory.

In regard to claims 9 and 12, the microprocessor of Gifford acts as a signal generator and, if provided with a speaker, microprocessors can generate audio signals.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gifford in view of Pyntikov et al. 6,853,107 B2. Gifford discloses multiple wire coil set solenoids with reciprocating magnetic objects 12a-12d with an energizing control system that variably controls the time duration for the energizing of the individual coil wire sets as described in column 2 lines 23-27 and column 5 lines 36-63 but does not disclose an energy control system that skips wire coil sets at selected times. Pyntikov et al. teaches in column 2 line 57 to column 3 line 10 that motors have different efficiencies at different speeds, based on the number or coils or wire turns in a coil. Since Pyntikov et al. and Gifford are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have varied the number of coils or turns in a coil in a reciprocating motor in order to increase the efficiency of the device.

Claims 8, 14, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gifford in view of Hiterer et al. 5,693,991. Gifford discloses multiple wire coil set solenoids with reciprocating magnetic objects 12a-12d with an energizing control system that variably controls the time duration for the energizing of the individual coil wire sets as described in column 2 lines

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23-27 and column 5 lines 36-63 but does not disclose a centering magnet. Hiterer et al. teaches using a centering magnet in column 7 lines 1-4, which allows the device to stop at a position that makes restarting the device easier. Since Hiterer et al. and Gifford are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized a centering magnet in order to make the starting and restarting of the propulsion system easier.

In regard to claim 14, while this is a method claim, it is rejectable on the same references as the structure claim 8.

In regard to claims 19 and 20, in the control system of Gifford, the time duration for the energizing of the individual coil wire sets is controlled by a microprocessor and is adjusted when the software instructions for the microprocessor are written.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gifford in view of Sasso 4,510,420. Gifford discloses multiple wire coil set solenoids with reciprocating magnetic objects 12a-12d with an energizing control system that variably controls the time duration for the energizing of the individual coil wire sets as described in column 2 lines 23-27 and column 5 lines 36-63 but does not disclose compartments or venting to the outside atmosphere. Sasso teaches venting to the outside atmosphere in column 6 lines 1 and 2. Sasso teaches enclosing the coils in column 4 lines 14-17 and column 5 lines 40-41, as shown in figures 1, 2 and 6. Sasso teaches enclosing the energizing circuit in column 9 lines 19-20. Since Sasso and Gifford are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have enclosed the coils and the energizing circuit to protect them from damage from water and dirt and it would have been

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obvious at the time the invention was made for one of ordinary skill in the art to have vented the cylinder and piston to the outside atmosphere in order to prevent the piston from wasting energy by compressing air at the top of the cylinder.

***Allowable Subject Matter***

Claims 6, 7, 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:  
The prior art of record does not disclose or teach a solenoid based propulsion system where the magnetic object is propelled out of a tube in combination with the other features of claims 6 and 15.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H. Jones whose telephone number is 571-272-2025. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Judson Jones 8/31/2005



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